Multichannel integration services: Consumer decision making in integrated sales channels

Completed Research Paper

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Abstract

As digitalization and technological innovations have blurred the line between physical and electronic channels, enormous growth rates in internet use have motivated most established retailers to expand their business to include online sales. These multichannel retailers are now under severe pressure from pure online retailers, since their physical infrastructure decreases their ability to compete via prices. While this infrastructure could also present opportunities to differentiate themselves by offering integrated multichannel services, their appeal is not fully understood by either researchers or practitioners. Building upon previous studies in online and offline commerce, this study investigates and explains the impact of different multichannel integration services on consumers' channel selection preferences. The results indicate that the appeal of integrated multichannel offerings differs widely from the previously investigated channel options. Accordingly, channel convergence requires research to adapt to technological advancements and apply a more complex view to the study of multichannel commerce.

Keywords: Multichannel commerce, integration services, channel choice, consumer behavior, multichannel retailing, cross-channel, e-commerce, channel synergies

Introduction

Technological advancements have enabled electronic and physical sales channels to converge, leading to a substantial increase in opportunities for multichannel retailers. However, the consequences of exploiting these opportunities are unclear. This work investigates the opportunities of integrated sales channels and their consequences for consumer decision making.

Multichannel commerce in general is becoming increasingly important, since both consumers and retailers employ multiple channels simultaneously. Consumers exhibit behavioral patterns such as "showrooming" (Weisenthal 2012), where customers visit local stores to inspect the product and subsequently purchase online, or "research shopping" (Verhoef et al. 2007), where consumers gather information in one channel, such as by reading on-line product recommendations, and purchase the product in another channel, such as a local store. Since electronic and physical channels have very different characteristics, these developments are challenging for retailers (Choudhury and Karahanna 2008). Owing to the popularity of the internet and its rising market size and share, many traditional retailers feel pressure to expand to electronic channels even though the majority of transactions still take place in physical stores (Figure 1). In response to this pressure, many firms are forced to offer their

customers a choice between different channel options (Zettelmeyer 2000). These multichannel retailers, which offer their products in local stores and online, are the focus of this study.

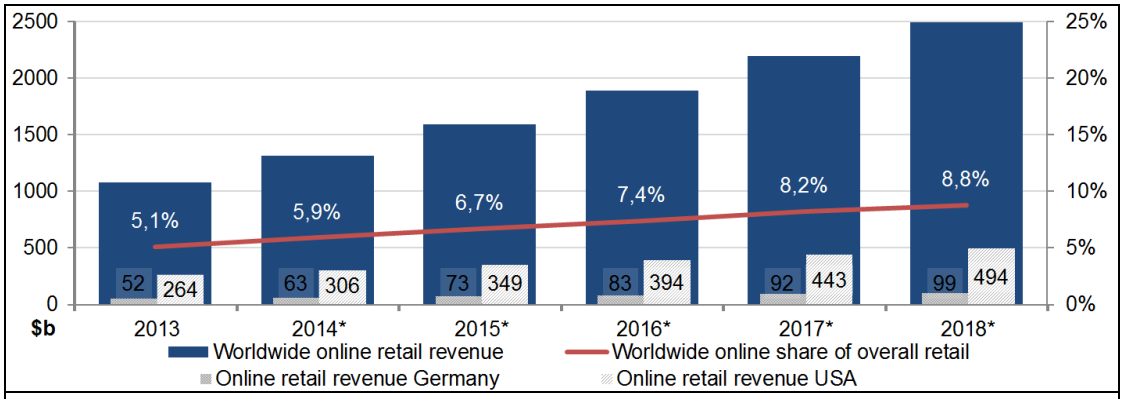


Figure 1. Growth and importance of electronic commerce (Source: eMarketer 2014)

Multichannel retailers face major challenges when competing with their pure online rivals, mostly because of their costly infrastructure. Since the markets are not separate (Goolsbee 2001), information is exchanged and customers move between the channels (Verhoef et al. 2007). Accordingly, multichannel retailers need to consider the consequences of management decisions for both online and offline channels simultaneously, as they face difficulties in competing via price on the internet with retailers that operate only online (pure play retailers). Competitive online prices are not sustainable in physical channels, since they are grounded on fundamentally different cost structures. At the same time, knowledge about multichannel price discrimination is scarce (Neslin et al. 2006; Wolk and Ebling 2010). Thus, many multichannel retailers charge the same prices online and offline (Ancarani 2002; Pan et al. 2002; Tang and Xing 2001; Wolk and Ebling 2010), choosing to prevent cannibalization or harm from customer confusion. Such "same price strategies," as implemented by multichannel retailers such as Media Markt, BestBuy, Walmart, or Toys R Us One (Metro Group 2012; Tuttle 2012), have turned out to be not competitive in the online channel for most products. Further, competitively priced products could not be sold profitably owing to the high overhead costs created by the physical stores and have massively shrunk these retailers' margins to a point where they may be unable to remain profitable (Matthews 2013). In summary, conventional retailers face a huge dilemma when entering the online channel, and their online business seems to lack a competitive advantage over pure play retailers.

As noted, one structural difference between multichannel retailers and pure online retailers is their costly infrastructure. While this infrastructure prevents multichannel retailers from being able to compete via price (Matthews 2013), the integration of physical and electronic channels may enable them to leverage these assets by offering additional services that pure online retailers cannot match. Maintaining physical and electronic channels simultaneously can have many desirable consequences for firms, including potential cost savings or market extension (Steinfield et al. 2002). However, an understanding of consumers' perceptions and reactions to multichannel integration services is the key to making informed decisions about the channel configurations and investments. If the customer values services such as in-store pickup or in-store repair, these services might offer an opportunity to escape the online price pressure. Accordingly, the goal of this study is twofold. First, we investigate which types of multichannel integration services influence consumers' channel preferences and choices and establish the general relevance of different types of integrated multichannel services for consumer and firm decision making. Second, we unveil the mechanisms that cause the differences in preferences for each type of integration service. This theoretical understanding enables researchers and practitioners to draw conclusions that go beyond the empirical findings and requires researchers to revisit the conceptualization of multichannel as it has been used in previous studies.

The remainder of this paper is structured as follows. First, we review the literature on consumer decision making between channels and multichannel integration. We then develop the theoretical model to explain the virtue of multichannel integration services. This model is subsequently empirically validated using a large experimental study. We close by discussing implications and outlining possibilities for further research.

Multichannel Integration

Multichannel retailing or multichannel commerce is defined as the "set of activities involved in selling merchandise or services to consumers through more than one channel" (Zhang et al. 2010, p. 168). Multichannel integration services (also termed multichannel services or integration services in the following) then describe services that enhance a transaction pursued in one channel by activities that are performed using a different channel. These activities can be either online services that enhance transactions initiated in a store or offline services for online transactions, such as in-store pickup, service, and return after an online purchase.

To gain a full overview of previously generated insights on consumer decisions in multichannel environment, we engaged in a structured interdisciplinary literature review (Okoli and Schabram 2010; Webster and Watson 2002). The results of this comprehensive review are summarized briefly in the following. Multichannel research has focused on the adoption of electronic channels (Pavlou 2003; Pavlou and Fygenson 2006), on consumers' evaluation of different channel options (Choudhury and Karahanna 2008), and on firms' strategies to organize optimally to serve their needs (Neslin et al. 2006). A long time, research has treated offline and online channels as polar opposites that consumers could choose between. Accordingly, many studies have investigated determinants of the trade-off between electronic and physical channels. Owing to the complexity of consumer channel decisions (Balasubramanian et al. 2005), most papers identify influence or contingency factors of channel choice instead developing an all-encompassing model that explains preferences for certain channels. Our in-depth analysis reveals that these factors fall into four groups: channel determinants, purchase specifics, external influences, and individual differences.

Channel determinants describe variables that are based on characteristics or the configuration of the channels, such as price, ease of use, product diagnosticity, privacy, security, speed of transaction or social experiences. In the context of this study, two channel determinants are emphasized: speed of purchase and post-purchase services. Three studies find that speed in receiving the purchase is a major driver toward offline channels (Chiang et al. 2006; Noble et al. 2005; Verhoef et al. 2007). This negative characteristic of online channels may potentially be mitigated by an immediate-pickup multichannel integration service, which we examine later. The second determinant, availability of post-purchase services, generally depends on the channel choice. Differences in these potentially demanded service offerings are influential for the channel preference (Chiang et al. 2006; Verhoef et al. 2007). Multichannel integration services such as "purchase online with service in store" can loosen the tie to one channel after the purchase phase and thereby influence the characteristics of the transaction channel. *Purchase specifics* refer to differences between purchase situations and include types of purchases (Chintagunta et al. 2012) and the product characteristics. Studies are highlighting the differences between high- or low-touch requirements (Levin et al. 2003), size and perishability of the product (Chintagunta et al. 2012) or simply different product types (Chiang et al. 2006; Levin et al. 2005). *External influences* can stem from either the marketing communication of the firm or peers of the consumer (e.g., Ansari et al. 2008; Chintagunta et al. 2012; Datta 2011; Valentini et al. 2011). *Individual differences* incorporate demographics (Bendoly et al. 2005; Konuş et al. 2008), geographic differences (Chintagunta et al. 2012; Forman et al. 2009; Janakiraman and Niraj 2011), and experiences (Ansari et al. 2008; Valentini et al. 2011) and skills of the consumer (e.g., Frambach et al. 2007).

Customers can also use different channels within one purchase. Often information is searched in one channel while another channel is used for the actual purchase, a behavioral pattern referred to as the research shopper phenomenon (Verhoef et al. 2007). Customers who use several channels of one vendor during the purchase are characterized by higher satisfaction and higher loyalty (Wallace et al. 2004). However, the switch between channels often also includes a switch in choice of vendor, a behavior called cross-channel free riding (Chiu et al. 2011) that has severe consequences for the firm that provides the information since consumers use its services but generate no revenues. If multichannel retailers are able to create convincing channel integration solutions, they may be able to create lock-in situations (Verhoef et al. 2007) and exploit multichannel shoppers who have been shown to be more valuable in terms of revenue (Kumar and Venkatesan 2005; Venkatesan et al. 2007) and retention (Venkatesan et al. 2007).

In summary, previous studies have focused on studying multichannel environments as two competing alternatives instead of investigating the possible interplay between the two. Thereby, the possibility of

synergies that create customer value has been neglected. Little research has addressed issues of multichannel integration in terms of an actual change of the channel characteristics. As a result, the question of the desirability, consequences, and value of channel integration is one of the most under-investigated issues in multichannel research (Neslin et al. 2006; Neslin and Shankar 2009; Zhang et al. 2010).

Perception and Decision Impact

The purchase process can be divided into three generic stages: the pre-purchase, purchase, and post-purchase phases (Gensler et al. 2012). In the pre-purchase stage, customers inform themselves about the product. The actual economic transaction takes place in the purchase stage. The post-purchase stage covers after-sales activities such as assistance with the product, service and repairs, and product returns. As we have described, consumers switch between channels during these stages (Verhoef et al. 2007). For instance, a consumer might inform himself about a product on the internet and visit a store to make the actual purchase, or vice versa. This switching between channels often also involves a switch to a different vendor (Chiu et al. 2011), since the pre-purchase stage entails no obligations. However, the choice of vendor and channel in the post-purchase phase is restricted by the decision made in the purchase stage, as post-purchase activities take place with the vendor that was used for the transaction. Whether different channels can be used for these activities depends on the level of multichannel integration that vendor offers. Therefore, preferences for the purchase and post-purchase stages are expressed in the choice of vendor in the purchase stage. Accordingly, study of choices at the purchase phase is sufficient when investigating multichannel integration services that alter the purchase and the post-purchase stage experience. Further, the valuation of different service options can be explained through varied convenience and risk perceptions (Keh and Pang 2010), as these two classes of perceptions reflect customers' positive and negative reactions to a specific alternative. We use these classes to investigate how multichannel integration services alter transaction characteristics perceived by customers.

Service convenience is defined as the customer's time and effort spent buying or using a service (Seiders et al. 2007). Service convenience is a five-dimensional construct consisting of decision convenience, access convenience, benefit convenience, transaction convenience, and post-benefit convenience (Berry et al. 2002). Decision, access, and benefit convenience refer to the steps that precede the actual purchase and therefore relate to the pre-purchase stage. Transaction convenience is evaluated during the purchase stage, while post-benefit convenience is influenced by the offerings in the post-purchase stage. Since multichannel integration services influence only the purchase and post-purchase stages, transaction and post-benefit convenience are the two dimensions of convenience that can be potentially influenced by variances in the level of integration. Transaction convenience refers to the time and effort of finalizing the transaction (Seiders et al. 2007). This type of convenience is present when consumers have made the decision to purchase and have reached the site (Berry et al. 2002). It describes the time and effort required before customers can experience the good they want to purchase. An opportunity to pick up the product immediately would reduce the time until the transaction is completed and the purchase can be consumed. Post-benefit convenience refers to the costs in time and effort associated with reestablishing contact with the firm (Seiders et al. 2007). This type of convenience relates to the possible need for product repairs, maintenance, or returns (Berry et al. 2002). Depending on the type of the inquiry, different paths to resolve possible issues (i.e., points of contact) can be more or less convenient for the customer.

The perception of risk can be described as a function of adverse consequences and uncertainty (Bauer 1960). Adverse consequences are "the costs . . . involved in attempting to achieve a particular set of buying goals" (Cox and Rich 1964, p. 33) or the "importance of loss" (Taylor 1974, p. 57). Uncertainty describes the consumer's assessment of the probability of the adverse consequences (Dowling 1986). Previous studies in electronic commerce have used many different conceptualizations of perceived risk (Crespo et al. 2009; Featherman and Pavlou 2003; Glover and Benbasat 2011; Spiekermann and Paraschiv 2002). In the context of this study, we distinguish between performance risk and psychological risk (Keh and Pang 2010) as key components of perceived risk (Mitchell and Greatorex 1993; Stone and Grønhaug 1993). Performance risk is related to whether the shop can perform as expected and thus satisfy customer needs (Keh and Pang 2010). The notion of performance risk is in line with the notion of the "failure to gain

product benefit risk" in e-commerce research (Glover and Benbasat 2011). Psychological risk relates to the possible loss of psychological well-being owing to transacting with this shop (Keh and Pang 2010).

In summary, performance risk refers to the uncertainty as to whether something will go wrong with the transaction, meaning that an actual loss occurs, while psychological risk can be described as "not feeling good," for example because of potential trouble when making the transaction with a certain retailer in a certain channel. Psychological risk and performance risk can occur during the purchase phase (e.g., with respect to delivery) as well as the post-purchase phase (e.g., for services and returns). Figure 2 gives an overview of the relationships between the different convenience and risk perceptions.

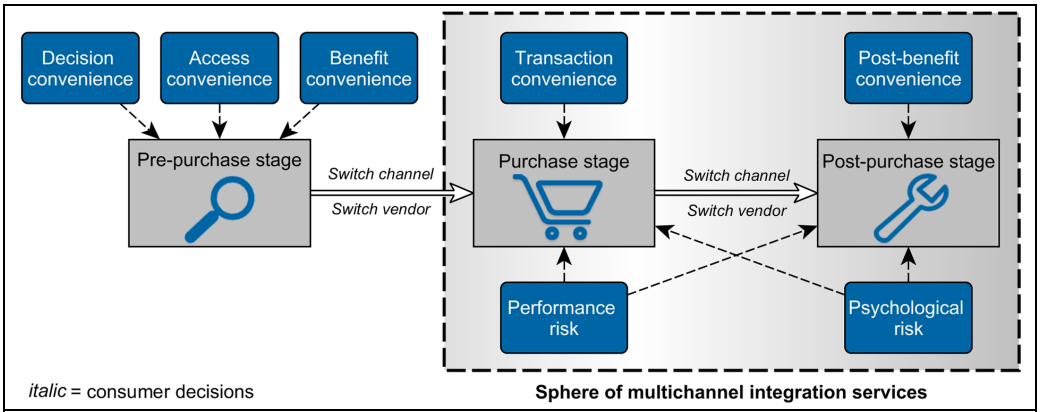


Figure 2. The relationship between the purchase process and consumer perceptions

If multichannel integration services are important to consumers, they should alter the perception of the transaction in a positive way. In the following, the three multichannel integration characteristics, namely the opportunity to pick up in store, immediacy of the pickup option, and availability of in-store service and returns are analyzed with respect to their role in increasing the conveniences or reducing the risks of online transactions.

The temporal and physical distance between purchase and gratification is a major issue for online retailers. The most frequently cited countermeasure to the perceived risk of dealing with a virtual counterpart is building trust (Bhattacherjee 2002; Kim et al. 2008; Yoon 2002). However, building trust is challenging. Possible ways to build online trust include the use of intermediaries (Bakos 1998), money-back guarantees (Lee et al. 2005), or the offering of well established brands (Bart et al. 2005). A very effective means of mitigating uncertainties in transactions is personal contact (Grabner-Kräuter and Kaluscha 2003). While personal contact is not provided in pure online transactions, the opportunity to pick up the product in store and in person instead of having it delivered holds out the prospect of a contact person. In this encounter, consumers can make sure that they receive the product and everything works as planned (mitigating performance risk). The availability of a pickup option furthermore sends a positive signal to the consumer (Pavlou et al. 2007) and should thereby reduce the worries or bad feelings when transacting with the vendor (mitigating psychological risk). Therefore:

H1a: Having an option to pick up in store decreases customers' performance risk online.

H1b: Having an option to pick up in store decreases customers' psychological risk online.

The offer of an immediate pickup has obvious implications for transaction convenience. Since consumers do not have to wait for the delivery, the time between the transaction and the consumption of the product is reduced. Accordingly,

H2: Having an option for immediate pickup increases customers' perceived transaction convenience for an online transaction.

While the pickup option relates to the purchase stage, in-store service and returns influence the post-purchase stage. In the same way as the pickup-in-store option operates during the purchase stage, the option to receive in-store service and returns offers a possibility for personal contact that can lessen the consumer's uncertainty (Grabner-Kräuter and Kaluscha 2003). Therefore, many worries can be reduced when an actual person is present (Gefen and Straub 2004). Beyond that, consumers receive or expect to

receive reassurances at the store that reduce their risk perception (Mitchell and Boustani 1994) (psychological risk). This expectation includes that questions and repair inquiries can be addressed in a dialogue with the product at hand (instead of via phone or relying on written descriptions). Both repair and return requests can be handled directly with immediate assurance that it will be accepted and executed (instead of sending it in). Since issues can be discussed and an individual is personally accessible, the perceived likelihood of failure in the post-purchase phase is reduced through these multichannel integration services (lowering performance risk). Furthermore, in a personal exchange with the vendor, potential problems with the product can be identified immediately and possibly resolved without delays. The same holds for returns that can be processed immediately, without having to wait for the shipping and processing of the order (post-benefit convenience). These considerations lead to the hypotheses that:

H3a: Having an option to complete service and returns in store increases customers' perceived post-benefit convenience for an online transaction.

H3b: Having an option to complete service and returns in store decreases customers' performance risk online.

H3c: Having an option to complete service and returns in store decreases customers' psychological risk online.

To be relevant for businesses, customer perceptions should have an influence on consumer decision making. A series of studies has confirmed the impact of convenience on important market outcomes such as customers' evaluation and purchase behavior, including the intention to transact (Seiders et al. 2005, 2007; Szymanski and Hise 2000), store choice (Messinger and Narasimhan 1997), and switching between providers (Keaveney 1995). Therefore, in line with this strong empirical evidence, we postulate that:

H4a: Online transaction convenience increases the probability of choosing the channel for the purchase.

H4b: Online post-benefit convenience increases the probability of choosing the channel for the purchase.

Perceived risk has been identified early as a major inhibitor of transactions (Cox and Rich 1964). As consumers perceive uncertain or ambiguous situations as threatening, they try to avoid such situations (Hofstede 1980). This avoidance is in line with the concept of perceived behavioral control described in the theory of planned behavior (Ajzen 1985, 1991), which can be exploited to develop a different perspective on why perceived risk influences behavioral intentions (Pavlou 2003). Consumers are more likely to transact if their uncertainties are reduced, since they gain control. Several studies provide empirical evidence for this negative relationship between perceived risk and the intention to transact in the context of online retailing (Jarvenpaa et al. 2000; Pavlou 2003). Accordingly, we hypothesize:

H4c: Online performance risk decreases the probability of choosing the channel for the purchase.

H4d: Online psychological risk decreases the probability of choosing the channel for the purchase.

An illustration of the hypothesized relationships is given in Figure 3. In the following section, these hypotheses are empirically tested in an experimental study.

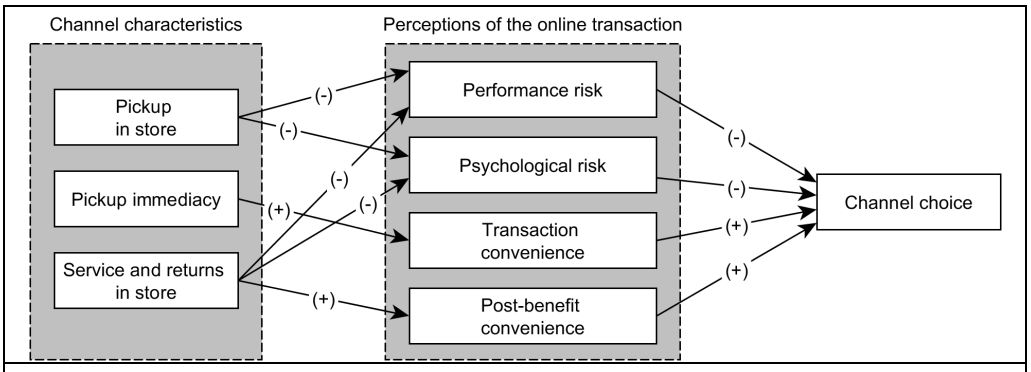


Figure 3. Illustration of the conceptual model

Empirical Study

A quantitative study with four experimental groups and a subsequent survey assessed the theoretical coherences. This section begins with a description of the measurement instrument development, including product selection, experimental manipulation, and scale development. The data collection process is then depicted. Subsequently, the data evaluation methods are discussed and the results of the study are presented, followed by a discussion of the findings and a reflection on the boundaries of the study.

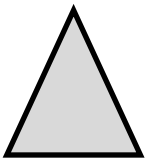
Measurement Instrument Development

To make the study as powerful as possible, the requirements for the product selection were manifold. A series of in-depth interviews and discussions with colleagues and consumers generated a shortlist of three product candidates. This set was then used in a pretest to check whether the products fulfilled the criteria. On the basis of this pretest, we selected a fully automated coffee machine as the product to be used in this study.

Four scenarios representing key instantiations of multichannel integration services in practice were developed for the experimental manipulation. Participants were randomly assigned to one of the four scenarios. All scenarios started with the description of a purchase at a local vendor to make the purchase situation more realistic and to generate a general propensity to transact with this retailer. Subsequently, participants were introduced to the retailer's online store which had one of four configurations. The manipulation was designed between subjects. Accordingly, every participant faced only one of the four more or less integrated online offerings. Level zero served as the baseline scenario. It represented a retailer that separates its online and offline business and does not offer any integration services. Levels one to three represented a gradually increased depth of integration. Depth of integration refers to the number and the sophistication of multichannel integration services offered. Its order was derived from our review of the largest multichannel retailers in multiple countries to represent business practice. Level one added an option to pick up the product in store with a delay of two days, a delay equal to the time of delivery via mail. Level two added the opportunity for immediate gratification since this retailer offers the option to pick up the product immediately. However, service and return inquiries cannot be executed in store, as this option is added in level three, where both channels are fully integrated and can be used for delivery and services. The four levels of integration are depicted in Table 1.

Besides assessing the experimental manipulation, the survey measured a variety of additional variables. Seven of these are latent constructs measured on a seven-point Likert scale by three or more indicators. We followed the steps suggested by MacKenzie et al. (2011) to develop and validate the measurement scales for these constructs, including conceptual definitions, qualitative pretests and formal quantitative pretest using 36 participants. The final measurement instrument consisted of 29 items for nine latent variables. All measurement models define first-order reflective latent variables. The items, the original sources appear in the appendix.

Table 1. Four levels of multichannel integration

Levels of integration	**Delivery**	**Service & Returns**	**Depth of integration**
Level 0: Non-integration	Postal (2 days)	Postal	
Level 1: Slow semi-integration	+ *Pickup (2 days)*	Postal	
Level 2: Fast semi-integration	+ Pickup (*immediately*)	Postal	
Level 3: Full integration	+ Pickup (immediately)	Postal o*r in store*	
Note: Additional integration services of higher levels are highlighted in italics			

Data Collection

Data were collected during October and November 2013. We chose a broad consumer panel over a student sample, since previous studies find demographics to be potential determiners of the choice

between online and offline channels and a homogenous sample might restrict the ability to derive more general conclusions from the study. The panelists were recruited through a professional market research firm in Germany. The sampling frame was restricted to internet users because this subgroup of the population contains potential buyers in the online channel. Consumers who still have no internet connection are not affected by multichannel integration and cannot be questioned on this issue. In the end, the answers of 348 internet users enable the analysis of the hypotheses. Participants have an average age of 37 years. The gender distribution is nearly balanced. The majority of participants is working with the most frequent income range being 1501-2500€. More than half of the participants have either a completed vocational training or a university degree.

One important issue of data collection using questionnaires is satisficing, which takes place "when optimally answering a survey question would require substantial cognitive effort, [and] respondents simply provide a satisfactory answer instead" (Krosnick 1991, p. 1). Such strategies can have severe consequences for the results of a survey, as single-item results can be biased, reliability of the scales can be reduced or inflated, and the associations between scales can be increased, all of which threaten the validity of the results, leading to lower statistical power and potentially erroneous conclusions (Barge and Gehlbach 2012; Chen 2011). Therefore, we implemented a large number of appropriate measures to detect (manipulation check, overly extreme stated prices, answers on four duplicate questions, control questions) or preferably *prevent* these behaviors by creating involvement, enjoyment, incentives and instructional manipulation check by Oppenheimer et al. (2009).

Results

The goal of the study is to explore the impact of certain channel characteristics on consumers' perceptions and choices. "If one is … concerned more with identifying potential relationships than the magnitude of those relationships, then regression or PLS would be appropriate" (Goodhue et al. 2012, p. 999). Thus, PLS-SEM is used to evaluate the hypotheses regarding the perception of multichannel integration services.

Measurement Model Validation

Three basic types of non-hierarchical measurement models can be distinguished: formative, reflective, and dummy-coded measurement models, where the latent variable and the indicator are identical (Henseler and Fassott 2010). The three experimental variables result in measurement models of the third type. They were dummy-coded to be one if the attribute is present for the channel configuration (i.e., the in-store pickup option is available (PIC); immediate pickup is possible (IMM); service and return in store are offered (SRS)) and zero otherwise. All other measurement models in this study are reflective on the basis of their definitions, since their indicators are consequences of the latent variable that they measure (Jarvis et al. 2003).

The reliability and validity of the reflective measurement models are evaluated in PLS-SEM on the basis of three criteria (Henseler et al. 2009): internal consistency reliability, convergent validity, and discriminant validity. Since Henseler and Sarstedt (2013) provide convincing evidence against the use of goodness of fit indices for PLS, the focus of the model evaluation is on well-established reliability statistics such as composite reliability (CR) and average variance extracted (AVE). Internal consistency reliability is assessed using the composite reliability score. The CR of all measurement models exceeds the suggested threshold of 0.7 (Nunnally and Bernstein 1994). Convergent validity is checked by investigating indicator reliability and the AVE (Henseler et al. 2009). On the item level, all but two factor loadings are above 0.708, suggesting that the items share more than 50% of their variance with the latent variable. Two items (OTRC3 0.65 and OPER3 0.62) do not meet this threshold. Although this phenomenon became evident in the thorough pretest, we decided not to alter the two indicators for reasons of comparability. The measurement models for the offline perceptions contain identical replication of the items used to measure the perceptions regarding the online transactions (ITRC and IPER). Since these constructs are used to control for the general perceptions of offline purchase and the factor loadings of the online counterparts were very good, the minor deviation from optimal threshold values in one statistic is less important than the comparability of the measures. Owing to the small deviation and since the overall measure of AVE meets the threshold of 0.5 for these and all other latent variables, a reasonable conclusion is that the

convergent reliability of the measurement models is very good. An overview on these statistics is given in the appendix.

Two tests assessed discriminant validity. First, the Fornell-Larcker criterion is tested. According to the rule, the square root of the each variable's AVE must be larger than its correlation with any other latent variable (Fornell and Larcker 1981). This criterion was fulfilled for all latent variables. Second, the factor loading on the intended latent variable must be higher than any cross-loading on other latent variables, saying that the indicator shares more variance with its latent variable than with any other variable. This criterion was also fulfilled, with no indicator sharing more than 50% of its variance with a second latent variable.

Because data for each respondent were partly obtained using a single measurement method, procedural and statistical remedies to minimize and control for common method bias (CMB) were applied (Podsakoff et al. 2003). First, different measurement methods were employed to prevent the emergence common method variance in the first place. The exogenous or independent variables were not measured at all, but were created through the experimental manipulation that was hidden from the participant. The between-subjects design should prevent CMB caused by consistency motifs or implicit theories (Podsakoff et al. 2003). Second, the dependent variables of choice probability and willingness to pay were measured with different scale types that reduce vulnerability to method effects (Sharma et al. 2009). Third, the questions were checked during the qualitative pretest for items that could trigger a social desirability bias. Additionally, respondents were guaranteed anonymity to further reduce the potential of this bias (Podsakoff et al. 2003). Fourth, psychological separation between the measurement of the dependent and the independent variables was ensured to reduce remaining consistency tendencies. Fifth, as discussed, the questionnaire was carefully developed to reduce satisficing behavior.

Beyond these remedies to minimize common method variance, two methods were applied to control for its effects in the dataset: Harman's single-factor test and the marker variable technique (Lindell and Whitney 2001). Harman's single-factor test (Podsakoff et al. 2003) was conducted by a principal components factor analysis in SPSS on the Likert-scaled variables. The analysis revealed nine factors with eigenvalues above one, which accounted for 71.75% of the variance. The largest single factor accounted for 21.34% of the variance. Since no single factor emerged or accounted for the majority of the variance, Harman's single-factor test indicates that CMB did not influence the results (Malhotra et al. 2006). The marker variable technique was applied post-hoc by using the lowest correlation in the correlation matrix as a proxy for the magnitude of CMB (Malhotra et al. 2006). In this case, we used the correlation between product involvement and online psychological risk (-0.06), which can be assumed to be theoretically unrelated. This correlation was partialled out of the correlation matrix. However, significances remained unchanged, signifying that CMB did not alter the results (Lindell and Whitney 2001). Overall, the procedural remedies and the statistical tests give a strong indication that CMB did not bias the results of the study.

Structural Model Validation

As detailed evidence shows that the measurement model is reliable and valid, the structural model can be evaluated. Due to space limitations, the results of the structural model evaluation including the test for collinearity issues are presented in Table 2. The significance of the path coefficients was assessed using 5,000 bootstrapping samples with 348 cases each.

The analysis also included a series of control variables to reduce the unexplained variance and control for alternative explanations. While these controls would not be necessary for the effects of the experimental manipulation, the hypotheses describe several relationships between other variables that could be affected by purchase-specific variables (product uncertainty, product involvement), environmental variables (distance to store), experiential variables (online shopping experience), previous choices (offline purchase share), or demographics (age, gender). Accordingly, we control for their impact on channel perceptions and channel choice probabilities so as to ensure that the wrong conclusions are not drawn because important variables have been omitted. For the choice probability, incorporating the role of the alternative channel is also important (Montoya-Weiss et al. 2003). For instance, a consumer might (not) choose the online channel because he perceives this offline alternative as being extremely unattractive (attractive). Therefore, the perceptions of the offline channel are incorporated in the model.

The model explained 19.2% of the variance of online transaction convenience, 17.0% of the variance of online post-benefit convenience, 22.1% of the variance of online psychological risk, and 20.5% of the variance of online performance risk. The model also accounts for 40.2% of the variance in channel choice probability. The effect sizes (f^2) of the manipulation on the four different perceptions were medium for the online post-benefit convenience (f^2(IPBC)=0.158) and small for the others (f^2(ITRC)=0.020; f^2(IPSR)=0.020; f^2(IPER)=0.013). Considering the large number of control variables, these effect sizes were to be expected. An overview on structural model evaluation is given in Table 2.

Table 2. Structural Results of PLS Model

	ITRC	**IPBC**	**IPSR**	**IPER**	**CPR**
R^2	**19.2%**	**17.0%**	**22.1%**	**20.5%**	**40.2%**
Hypothesized relationships					
Multichannel characteristics					
Pickup in store			**-0.1***	**-0.04**	
Pickup immediacy	**0.14***				
Service & return in store		**0.32*****	**-0.05**	**-0.07**	
Online channel perceptions					
Online transaction convenience (ITRC)					**0.21*****
Online post-benefit convenience (IPBC)					**0.23*****
Online psychological risk (IPSR)					**-0.18****
Online performance risk (IPER)					**0.04**
Controls and covariates					
Pickup in store	0.00	0.02			-0.03
Pickup immediacy		0.05	0.01	-0.01	0.01
Service & return in store	-0.02				0.08
Offline transaction convenience					-0.12*
Offline post-benefit convenience					-0.20***
Offline psychological risk					0.11*
Offline performance risk					0.00
Product involvement					0.08
Distance to store					0.14***
Product uncertainty			-0.14**	-0.2***	0.05
Online shopping experience	0.37***	0.06	-0.2**	-0.18**	-0.07
Offline purchase share	-0.09	-0.13**	0.24***	0.23***	-0.24***
Age	0.17***	0.06	-0.16**	-0.2***	0.07
Gender	-0.12*	0.02	-0.11**	0.01	-0.03

Note: Table shows standardized path coefficients; R^2: total variance explained; CPR: choice probability; * $p<0.05$, ** $p<0.01$, *** $p<0.001$, not significant otherwise.

The bootstrapping test by Zhao et al. (2010) was used to test the mediation effects from the independent variables to channel choice via consumer perceptions. The results indicate an *indirect-only mediation* for the paths from pickup immediacy via online transaction convenience to choice probability and for service in store via online post-benefit convenience to choice probability. Of all possible mediation types, indirect-only mediation gives the strongest indication that the relationship is consistent with the hypothesized theoretical framework (Zhao et al. 2010). The path from pickup in store via online psychological risk to choice probability turned out to be a *non-mediation* path. The results of the test are shown in Table 3, which gives a full overview on the mediation analysis.

Table 3. Mediation analysis for significant paths						
Independent variable	Mediator	Dependent variable	95% CI indirect effect	Signif. direct effect?	Effect consistent?	Type of mediation
Pickup in store	Online psychological risk	Choice probability	[-.0018;.0539]	NO	YES	Non mediation
Pickup immediacy	Online transaction convenience	Choice probability	[.0003;.0646]*	NO	YES	Indirect-only med.
Service & Return in store	Online post-benefit conven.	Choice probability	[.0373;.1449]**	NO	YES	Indirect-only med.
Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$, not significant otherwise, Types of mediation by Zhao et al. 2010						

Limitations

The study focused on only one specific product to analyze the perception and the impact of multichannel integration services. Although the product was chosen using an elaborate set of requirements that make it an appropriate candidate for studying the phenomenon, product attributes must be taken into account before applying the results to product categories that differ significantly.

The experimental design varying depth of integration between subjects does furthermore not allow the investigation of interaction effects between different types of multichannel integration effects. Although we have no indication to expect reinforcing or mitigating effects between different services, the empirical study provides no evidence for or against interactions. In-store service and return were studied simultaneously in the empirical study. Their structural similarities as well as the constraints of a compact study led to the decision to group these services—a realistic approach since they are strongly connected to each other. Issues with the product can lead to returns and a return can be prevented by explaining the product better or by resolving issues. Although theoretically unlikely, the dataset does not rule out the possibility that these services differ in their effects.

Discussion

Multichannel integration services change the way consumers interact with retailers. The results indicate that channels that offer multichannel integration services evoke different behavioral outcomes than pure online channels. This study describes and explains these effects and provides the understanding necessary to successfully manage the convergence of physical and electronic channels.

The results indicate that convenience perceptions have a large influence on channel choice—a finding in line with previous studies that find that convenience drives the decisions between channels (e.g., Frambach et al. 2007; Gensler et al. 2012; Verhoef et al. 2007). The reduced time and effort related to a purchase is incorporated into consumers' decision making. Convenience can be perceived in either the purchase or post-purchase phase. Since the services available at the post-purchase phase are determined by the choice of a specific vendor at the purchase phase, results indicate that both types of convenience are important explanatory variables for consumers' channel selection. With regard to risk perceptions, results identify a strong impact of psychological risk on channel choice, implying that consumers' worries also play an important role in channel choice. Surprisingly, we found no support for the role of performance risk with regard to channel choice, although previous studies in the e-commerce context have found indications for the impact of performance risk on channel choice (Gensler et al. 2012) or aggregated risk (Gupta et al. 2004). While psychological risk is related to worries of potential trouble when making the transaction with a certain retailer in a certain channel, performance risk refers to the uncertainty of suffering an actual loss. Studies in other contexts have found that psychological risk is a much stronger determiner of overall risk than performance risk (Stone and Grønhaug 1993), offering a possible explanation for this finding and suggesting that consumers are not really worried that a transaction will actually fail and they will lose their money. Rather, they are concerned about the unpleasant activities that they will have to perform if something goes wrong, such as complaining, discussing, and providing evidence. Studies that address only performance risk and ignore the other important dimension of risk may not find this effect (Gensler et al. 2012). However, the results provide

strong evidence that psychological burden—not the actual risk of losing money—drives consumers' channel decisions from a risk perspective.

These perceptions of convenience and risk are influenced by different integration services. A pickup option reduces the psychological risk of the online purchase. Using a standard delivery can require considerable effort if the product does not arrive or if it is damaged. In contrast, offering the pickup option sends a positive signal to consumers (Pavlou et al. 2007) and enables them to complete the transaction without having to worry about such uncertain events. The pickup in store option allows consumers to make sure they receive the product and that it is fully functional without the need for unpleasant subsequent interactions. However, a delayed pickup does not decrease performance risk. Performance risk occurs if consumers are worried that a delivery failure would lead to an actual financial loss. In this study, consumers seem to be convinced that the obligation to produce proof (established in German law) provides them with enough certainty that their purchases are well protected, independent of their possibility to interact in person (Grabner-Kräuter and Kaluscha 2003). Therefore, delayed pickup decreases their psychological risk, but not their performance risk. Offering immediacy of the pickup increases the convenience of the transaction. While the immediacy does not lead to additional risk reduction, it reduces the time until the purchase process is completed and thereby offers an additional advantage in terms of convenience.

The in-store service and return option influences the convenience perception of the purchase, but not its risk. Consumers perceive the possibility to receive service or perform returns in store as less time-consuming and effortful. However, this perception does not imply that the uncertainty of these procedures is reduced. The risk of incurring a loss because problems with the product cannot be resolved, repairs are not accepted, or returns are declined remains the same (performance risk). Therefore, in-store service and return also do not reduce the psychological worries with regard to these processes. However, having these services in store decreases the time and effort necessary to fulfill consumer goals in the post-purchase phase. Problems with the use or the functionality of the product can be identified much more easily with personal interactions and possibly may be resolved immediately. The same is true for returns that can be processed immediately without having to wait for the delivery and processing of the shipment, making the process more convenient (Mattila and Wirtz 2004).

The results indicate that the differentiation between types of multichannel integration services is important since the types differ widely in their effects and appeal. This finding provides additional evidence that studying multichannel integration services at an aggregate level (Bendoly et al. 2005; Oh and Teo 2010) may not be sufficient. Regarding the overall effects of the multichannel services on channel choice, the impact of pickup immediacy on the choice is fully mediated by transaction convenience (Baron and Kenny 1986; also described as "indirect-only" mediation by Zhao et al. 2010). This finding implies that pickup immediacy has a significant effect on channel choice that can be explained by the increase in transaction convenience. The same type of relationship occurs between in-store service and returns and channel choice. Such post-transaction services have been found to influence choices between offline and online channels (Chiang et al. 2006), as the results indicate that they have an impact independent of the transaction channel itself. Post-benefit convenience explains the significant relationship between this integration service and consumer choice. In contrast, offering a general pickup does not influence consumers' choices significantly, which is unfortunate since this type of multichannel integration service is the easiest to implement.

Theoretical Contribution

This study aims at making a theoretical contribution on two levels: it creates an understanding of the virtue of different types of integration services between online and offline channels, and it reveals how the conceptualization of online and offline retailing applied in previous studies needs to be revised.

First, this study contributes to the understanding of multichannel integration services by differentiating between types of integration services and studying them separately. Previous studies on integration services have used integration services as a meta-concept (Bendoly et al. 2005; Oh et al. 2012; Oh and Teo 2010) without distinguishing within the broad spectrum of possible integration activities. These studies are therefore unable to give an explanation for the effects they identify. This study is the first to explicitly examine different concrete types of integration. The results indicate that this differentiation is highly

relevant since the integration types influence consumers' perceptions in dissimilar ways. Different types of integration services can either reduce consumers' risk perception or increase consumers' convenience at diverse stages of the transaction process. Attributing different perceptions to specific multichannel integration services adds to our understanding of multichannel commerce and enables researchers to explain phenomena they encounter in converging multichannel environments. By exploiting the perceptual differences between types of multichannel integration services, this study is able to explain the impact of types of integration on consumers' channel choices. Thus this study not only introduces different multichannel integration services as a new object of study with an impact on channel outcomes. It also identifies the explanations for this effect and provides empirical evidence for their validity.

Second, this research unveils a necessary re-conceptualization of multichannel commerce. A large body of literature has investigated offline, online, and multichannel retailing. Early studies investigated the differences between online and offline channels (Bakos 1997). Factors that drive the choices between offline and online channels were subsequently analyzed (e.g., Balasubramanian et al. 2005), and later studies on multichannel consumer behavior incorporate the use of several channels. This incorporation encompasses the use of several channels within different phases of one purchase (e.g., Gensler et al. 2012) or the use of different channels for different purchases (e.g., Konuş et al. 2008; Venkatesan et al. 2007). However, all of these studies treat offline and online channels as polar opposites. The results of this study indicate that multichannel integration services demolish this dichotomy. With the integration of online and offline channels, consumers no longer decide between one or the other channel. Instead, they have the option to select any degree of integration between the two that fits their preferences. In the same way, vendors' decisions are no longer limited to being online, being offline, or being multichannel. Rather, vendors need to consider a continuum of possible channel configurations between online and offline. This study provides empirical evidence that channels that offer a certain degree of integration on the consumer side differ widely from both pure online or pure offline channels. Different levels of integration lead to even more variety in the perceptions and valuations of customers. Previous conceptualizations of multichannel retailing can no longer fully encompass consumers' multichannel behavior since technological advancements have moved retailing beyond the two established types of channels. Accordingly, multichannel research must reflect this increased complexity of channel decisions and analyze its consequences for established relationships and models. The refined conceptualization of multichannel retailing is depicted in the multichannel continuum in Figure 4.

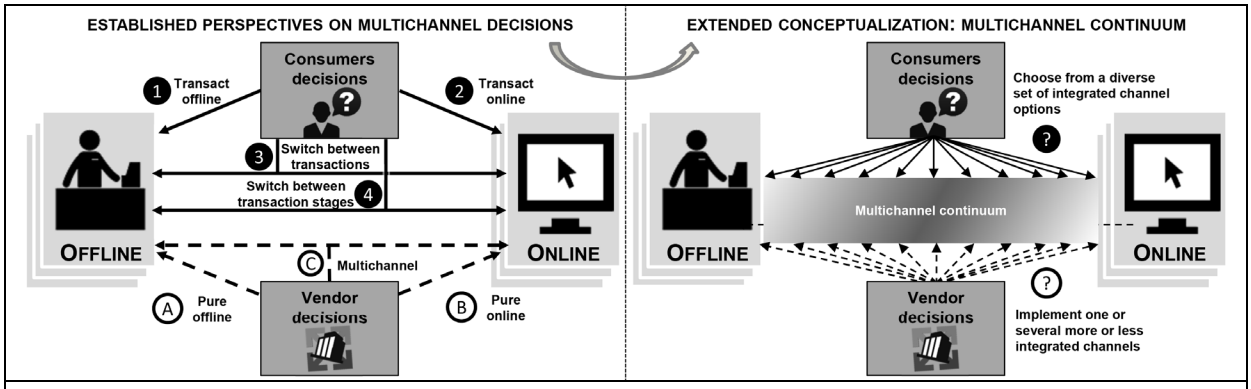


Figure 4. The multichannel continuum

Practical Contribution and Future Research

From a practical point of view, the findings can help offline or multichannel retailers to identify which channel services they should invest in. In contrast to other differentiating factors, such as service quality or a brand that can be altered by management decisions or marketing campaigns, the availability or lack of multichannel services can present a persistent difference between pure and multichannel online retailers. The results indicate the general hierarchy of multichannel integration services. They suggest that in-store service is the multichannel integration service that consumers value the most. If in-store service is implemented, also offering in-store returns probably makes sense, since the mechanics of these services are strongly related. In contrast to the current implementations of many retailers, the power of a delayed

pickup is limited. If a pickup option is offered, consumers should be able to receive the product immediately. However, an immediate pickup requires a much tighter integration of infrastructure and processes and is therefore the most expensive and difficult integration service to implement.

The increased complexity of channel decisions induced by multichannel integration services evokes different perspectives as starting points for future research: revisiting previous research in the light of the new findings or extending the scope and the boundaries of this study. As this work highlights that different degrees of channel integration influence channel preferences and perceptions, effects and models that studied offline and online commerce as separate entities should be revisited and adapted to the dynamic, more complex environment where multichannel integration services blur the boundaries between online and offline channels. Regarding the scope and the boundaries of the study, it would be interesting to investigate how the interplay between online and offline channels is altered if integration services are introduced earlier in the lifecycle of electronic commerce (Datta 2011) and how cultural dimensions such as long-term orientation or uncertainty avoidance (Hofstede 1980) could, in line with earlier studies on digital channels and services (e.g., Kim 2008; Sia et al. 2009), be well suited to explaining the effectiveness of multichannel integration services in different cultural settings.

Conclusion

The rise of electronic commerce has greatly increased the importance of multichannel retailing and at the same time brought forward many technological innovations. This study investigated the virtue of three types of multichannel integration services in a multichannel retailing environment. The study explains the differences in choice probability of types of multichannel integration services through a set of convenience and risk perceptions that are influenced by these services. Results demonstrate that the mechanisms that drive channel choice and their outcomes vary between the different multichannel integration services. Therefore, differentiating between these types becomes necessary—instead of studying their impact on an aggregate level as previous studies have done.

The results indicate that moving beyond the dichotomy of physical and electronic channels and investigating multichannel retailing is imperative, using an integrated perspective that incorporates the converging nature of previously separated alternatives. Using this perspective enables information systems researchers to take the lead in driving the understanding of the future of commerce.

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Appendix

Measurement instrument	
Constructs and items	**AVE &** Loadings
(Offline / online) Transaction convenience (Seiders et al. 2007) *CR: 0.82 / 087*	**0.61 / 0.69**
OTRC1 [ITRC1]: The store [online-shop] makes it easy for me to conclude my transaction.	0.78 /0.90
OTRC2 [ITRC2]: It is effortful to complete this purchase at the store [online-shop]. [reversed]	0.89 / 0.77
OTRC3 [ITRC3]: I am able to complete my purchase quickly at the store [online-shop].	0.65 / 0.83
(Offline / online) Post-benefit convenience (Seiders et al. 2007) *CR: 0.88 / 0.92*	**0.67 / 0.75**
OPBC1 [IPBC1]: The retailer takes care of product exchanges and returns promptly.	0.85 / 0.85
OPBC2 [IPBC2]: Any after-purchase problems I experience are quickly resolved at the retailer.	0.77 / 0.88
OPBC3 [IPBC3]: The exchange or return of goods at the retailer can cause problems. [reversed]	0.80 / 0.86
OPBC4 [IPBC4]: It can be complicated to return or exchange products at this retailer. [reversed]	0.84 / 0.87
(Offline / online) Psychological risk (Keh and Pang 2010) *CR: 0.94 / 0.92*	**0.73 / 0.79**
OPSR1 [IPSR1]: The thought of using this store [online-shop] makes me feel psychologically uncomfortable.	0.87 / 0.90
OPSR2 [IPSR2]: The thought of using this store [online-shop] gives me a feeling of unwanted anxiety.	0.84 / 0.89
OPSR3 [IPSR3]: The thought of using this store [online-shop] causes me to experience unnecessary tension.	0.86/ 0.90
OPSR4 [IPSR4]: I would worry a lot when buying this store [online-shop].	0.86 / 0.87
(Offline / online) Performance risk (Keh and Pang 2010) *CR: 0.80 / 0.85*	**0.58 / 0.66**
OPER1 [IPER1]: There is a high chance that something goes wrong when buying at this store [online-shop].	0.86 / 0.84
OPER2 [IPER2]: There was a high chance that I would suffer some loss when transacting with this store [online-shop].	0,78 / 0.80
OPER3 [IPER3]: The risk of purchasing at this store [online-shop] is low. [reversed]	0.62 / 0.80
Product uncertainty (Dimoka et al. 2012) *CR: 0.83*	**0.63**
PUN1: I feel that purchasing this coffee m. involves a high degree of uncertainty about the machine's actual quality. [rev.]	0.79
PUN2: I feel certain that I can fully understand everything I need to know about this coffee machine.	0.77
PUN3: I am certain that this coffee machine will perform as I expect it to perform.	0.81
Online shopping experience (Frambach et al. 2007; Murray and Schlacter 1990) *CR: 0.94*	**0.83**
OEX1: I have a great deal of experience with the online retailing.	0.94
OEX2: I am familiar with the different possibilities to use the internet for purchasing.	0.87
OEX3: I am very confident in using the internet for purchases.	0.93
Product involvement (Seiders et al. 2007) *CR: 0.96*	**0.87**
PIN1: I have a strong personal interest in coffee machines.	0.94
PIN2: Coffee machines are very important to me.	0.94
PIN3: Products like coffee machines are of high importance to me.	0.95
PIN4: Coffee machines are irrelevant to me. [reversed]	0.91
Offline purchase share (own) *CR: 0.81*	**0.68**
OPS1: What percentage of your purchases of books have you done in a physical store? [last year]*	0.80
OPS2: What percentage of your purchases of gadgets have you done in a physical store? [last year]*	0.85
Choice probability (own) *CR: 0.89*	**0.81**
CPR1: How likely is it that you purchase the product at the described retailer?**	0.92
CPR2: If prices were the same, I would prefer to purchase the product at [offline store … $describedonl.-shop].***	0.87

Note: Unless indicated otherwise, all items were measured on a seven-point Likert scale from strongly disagree to strongly agree**.**
* 100% had to be distributed between physical and online store types.
** 100% had to be distributed between the offline alternative and the described online-shop with or without certain multichannel integration services.
*** a differential scale was used to measure the strength of choice probability between the offline alternative and the described online-shop.
CR: composite reliability; AVE: average variance extracted